

REMARKS

Claims 1-3, 6-10, 12, 13, 16-19, 29-35, and 37-42 are pending in the application.

Applicants respectfully submit that entry of the currently amended claims is proper because the currently amended claims will either place the application in condition for allowance or in better form for appeal.

Claims 1-3, 6-10, 12, 13, 16-19, 29-35, and 37-40 are currently amended. Cancelled claims 4, 5, 11, 14, 15, 20-28, and 36 include newly cancelled claims 5, 15, and 36. New claims 41 and 42 are added. Applicants respectfully submit that no new matter is added to the currently amended claims 1-3, 6-10, 12, 13, 16-19, 29-35, and 37-4, or to new claims 41 and 42.

Claims 10, 12-13, 15-19, 30 and 32 stand rejected under 35 U.S.C. §101.

Claims 33-40 stand rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,721,734 to Subasic et al., hereinafter, Subasic.

Claims 1-3, 5-10, 12-13 and 15-19 stand rejected under 35 U.S.C. §103(a) as unpatentable over Subasic in view of U.S. Patent No. 6,289,304 to Grefenstette.

Claims 31-32 stand rejected under 35 U.S.C. §103(a) as unpatentable over Subasic in view of Grefenstette and further in view of U.S. Patent No. 6,418,435 to Chase.

Applicants respectfully traverse the rejections based on the following discussion.

I. The 35 U.S.C. §101 Rejection

Claims 10, 12-13, 15-19, 30 and 32 stand rejected under 35 U.S.C. §101 because the Office Action asserts that the claimed invention is directed to non-statutory subject matter, i.e., a computer program *per se*.

Applicants respectfully submit that the preamble of independent claim 10 is amended, above, to recite in relevant part, "A program storage device readable by machine, tangibly embodying a program of instructions executable by said machine to perform a method of analyzing opinions in a text document, said method comprising:"

and the preamble of dependent claims 12, 13, 16-19, 30, and 32 are amended, above, to recite in relevant part, "The program storage device of claim 10", in accordance with the order of In re Beauregard, 53 F.3d 1583 (C.A. Fed. 1995).

The rejection of cancelled claim 15 is moot.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 10, 12-13, 15-19, 30, and 32 under 35 U.S.C. §101.

II. The Prior Art Rejections

A. The 35 U.S.C. 102(e) Rejection as Anticipated by Subasic

1. The Subasic Disclosure

Subasic discloses that the process of analyzing the affect of any document in a database requires the generation of an affect set for a document. Fig. 2 of Subasic illustrates the process for creating a document affect set. An affect set is simply a set of affect categories for a text document with associated centralities and intensities (discussed below). As illustrated in Fig. 2, a document 100 is initially tagged 102. Tagging the document involves parsing the document into individual words and normalizing the words according to the English language using the grammar rules 110. This would involve converting inflected word forms into base forms (e.g., "goes" to "go") by rule or by a listing or look up table. The normalized words are then tagged – that is associated with category designations and numerical representations. Once the document has been tagged 112, the normalized words are looked up in an affect lexicon 104. If a word has a lexicon entry, that entry and its associated centrality and intensity scores are also selected, tagged and added to the initial affect set 114. (col. 3, lines 19-36, which is cited by the Office Action).

Subasic also discloses that the affect lexicon 104 is a list of words (and associated parameters) that pertain to emotion. The affect lexicon contains entries of the form: <lexical_entry> <part_of_speech_tag> <affect_category> <centrality> <intensity> as in "arrogance" sn superiority 0.7 0.9. (col. 3, lines 37-48).

Subasic further discloses that a lexical entry is a word that has an affectual connotation or denotes affect directly. An affect lexicon is simply a table correlating words with affect entries and having an assigned centrality and intensity. (col. 3, lines 49-52).

Subasic also discloses that since ambiguity sometimes depends on a word's part of speech (POS) – and since natural language processing allows one to differentiate parts of speech in documents, -- POS information 102 is included for lexicon entries. (col. 3, lines 55-58).

Subasic further discloses that a word's POS can affect its centrality or intensity values as well as its category assignment. For example, lexicon entries with POS, categories, and centrality degrees for the word "craze" include:

"craze" vb insanity 0.8

"craze" sn insanity 0.5

That is, the verb craze belongs to affect category insanity with a degree of 0.8; the singular noun craze belongs to the same category with a degree 0.5. This reflects the fact that the verb craze means to make insane or as if insane – very central to the insanity category, while the noun craze means an exaggerated and often transient enthusiasm – i.e., it belongs to insanity only in a less central, more metaphorical sense. (col. 3, line 66 to col. 4, line 12).

Lastly, Subasic describes use of an affect set and an affect lexicon in his claim 1, "A method for retrieving information from a data source, comprising the steps of: selecting at least one document; parsing said document into a plurality of words; creating an initial affect set for said document by comparing said words to an affect lexicon and assigning an affect category, a centrality and an intensity to each of said words found in said affect lexicon; and using said affect set to retrieve information from said data source." (col. 13, lines 11-21).

2. Arguments

Currently amended, independent claim 33 recites in relevant part,

"establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence;

inputting and parsing said text document to provide a plurality of POS tag sequences;

matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions".

Subasic discloses a word-by-word process of analyzing a text document for words having an affectual or emotional connotation/denotation. In particular, Subasic discloses a word-by-word process of normalizing a word from a text document, in which normalizing may include morphological stemming of a word or identifying the part-of-speech of a word, and assigning the normalized word to a category designated for a particular affect. The normalized word is then tagged to produce a tagged, normalized word format, <lexical_entry> <part_of_speech_tag> <affect_category> <centrality> <intensity>, which may be looked up in an affect lexicon.

The independent claims of the present invention recite ""establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence; inputting and parsing said text document to provide a plurality of POS tag sequences; matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions" (emphasis added), in which predetermined POS tag sequences, representing a plurality of words corresponding to a pattern of parts-of-speech commonly associated with an opinion, is matched to a text document, in which every word is parsed as a part-of-speech to produce a sequence of parts-of-speech corresponding to the entire text document. In the present invention, when a predetermined POS tag sequence from a regular expression, i.e., a plurality of ordered

parts-of-speech, matches a POS sequence of the text document, i.e., again, a plurality of ordered parts-of-speech, the matched POS tag sequence from the text document is extracted as an opinion.

In contrast, Subasic merely compares, word-by-word, each word of a text document to an affect lexicon. Subasic merely utilizes POS tags of a single word to aid designation of that word to an affect category. Nowhere does Subasic disclose, teach or suggest matching a predetermined set of regular expressions, in which each regular expression of the predetermined set of regular expressions corresponds to a specific POS tag sequence, to a plurality of POS tag sequences from a text document to provide one or more extracted opinions, as described by the independent claims of the present invention.

For at least the reasons outlined above, Applicants respectfully submit that Subasic does not disclose, teach or suggest the present invention's claimed features of "establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence; inputting and parsing said text document to provide a plurality of POS tag sequences; matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions", as recited in currently amended, independent claim 33. Accordingly, Subasic does not anticipate, nor render obvious, the subject matter of currently amended, independent claim 33 and currently amended, dependent claims 34, 35, and 37-40 under 35 U.S.C. §102(e). The rejection of cancelled claim 36 is moot. Withdrawal of the rejection of claims 33-40 under 35 U.S.C. §102(e) as anticipated by Subasic is respectfully solicited.

B. The 35 U.S.C. 103(a) Rejection as Unpatentable over Subasic and Grefenstette

1. The Grefenstette Disclosure

Grefenstette discloses that "[t]ext is summarized using part-of-speech (POS) data indicating parts of speech for tokens in the text. ... The POS data can be used to obtain group data indicating groups of tokens of the text, such as verb groups and noun groups.

The group data can also indicate, within each group, any tokens that meet a POS based removal criterion. The group data can be used to obtain summarized text data by removing tokens that meet the removal criterion. ... The summarized text may output as text or as audio pronunciation using a speech synthesizer." (Abstract).

The Office Action cites Greffenstette for "teach[ing] the step of graphically displaying said categories of semantic orientation, wherein said displaying comprises displaying relative proportions of said opinions in said categories or semantic orientation (col. 9, lines 1-7)." (Office Action, page 7, printed lines 10-12). The cited teaching of Greffenstette discloses "In one embodiment, the resulting text is presented to the user as pronounced text using a commercial text-to-speech synthesizer; pronounced text for each level of reduction could be obtained in this way and recorded, for subsequent play back in response to user signals selecting a level of reduction. The resulting text could alternatively be presented in a banner or box on a display screen." (col. 9, lines 1-7).

2. Arguments

Currently amended, independent claims 1 and 10, and new claims 41 and 42, which respectively depend from claims 1 and 10 recite in relevant part,

"establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence;

inputting and parsing said text document to provide a plurality of POS tag sequences;

matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions;

...

... further comprising graphically displaying said clusters of extracted opinions, wherein said graphically displaying comprises displaying relative proportions of said extracted opinions in said clusters of extracted opinions".

Greffenstette merely discloses the possibility of outputting reduced text (please see, S9 of Fig. 3) as a banner or box on a display screen.

In contrast, the present invention claims the feature of displaying relative proportions of extracted opinions in clusters of extracted opinions in new claims 41 and 42. Nowhere does Greffenstette disclose, teach or suggest any proportionate display in a banner or box on a display screen. Instead, Greffenstette merely discloses displaying reduced text as a banner or a box on a display screen.

Furthermore, Greffenstette does not cure the deficiencies of Subasic. Nowhere does Greffenstette disclose, teach or suggest the present invention's claimed features of "establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence; inputting and parsing said text document to provide a plurality of POS tag sequences; matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions", as recited in currently amended, independent claims 1 and 10. Instead, Greffenstette merely discloses a method of summarizing text by removing words of text according to parts-of-speech removal criteria.

For at least the reasons outlined immediately above in regard to Greffenstette and for at least the reasons outlined above in regard to the prior art rejection over Subasic, Applicants respectfully submit that Subasic and Greffenstette, either individually or in combination, do not disclose, teach or suggest the present invention's claimed features of "establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence; inputting and parsing said text document to provide a plurality of POS tag sequences; matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions", as recited in currently amended, independent claims 1 and 10. Accordingly, Subasic and Greffenstette, either individually or in combination, do not render obvious the subject matter of currently amended, independent claims 1 and 10, currently amended, dependent

claims 2, 3, 6-9, 12, 13, and 16-19, and new claims 41 and 42 under 35 U.S.C. §103(a). The rejection of cancelled claims 5 and 15 is moot. Withdrawal of the rejection of claims 1-3, 5-10, 12, 13, and 15-19 under 35 U.S.C. §103(a) as unpatentable over Subasic and Greffenstette is respectfully solicited.

C. The 35 U.S.C. 103(a) Rejection as Unpatentable over Subasic, Greffenstette and Chase

1. The Chase Disclosure

Fig. 3 of Chase illustrates a graphical user interface 14 in 'look up' mode. When in 'look up' mode, the user may type a word or phrase into a 'look Up' box 54 in the upper left corner of the interface window 52. The connotative dictionary responds to the user's typed input by retrieving denotative information from the database 12 relating to the word or phrase that has been typed into the 'look up' box 54. (col. 10, lines 52-60).

Chase also discloses that simultaneously, the dictionary 10 retrieves from the database 12 and displays on display 22 a range of connotative information relating to the same word or phrase that the user has typed in the 'look up' box 54. .. In one embodiment the connotative information is displayed in a color-coded graphical format, including horizontal bars. Preferably, the relative lengths of the horizontal bars represent data corresponding to connotative intensity (strength or weakness). (col. 10, line 66 to col. 11, line 11).

The Office Action cites Chase for teaching "the step of graphically displaying comprises displaying said categories of semantic orientation using at least one of a pie-chart and a bar chart (figure 3)." (Office Action, page 9, printed lines 11-13).

2. Arguments

Currently amended, dependent claims 31 and 32 respectively depend from currently amended, dependent claims 41 and 42, which respectively depend from currently amended, independent claims 1 and 10 and recite in relevant part,

"establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence;

inputting and parsing said text document to provide a plurality of POS tag sequences;

matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions;

... .

... further comprising graphically displaying said clusters of extracted opinions, wherein said graphically displaying comprises displaying relative proportions of said extracted opinions in said clusters of extracted opinions.

... wherein said graphically displaying comprises displaying said clusters of extracted opinions using any of a pie-chart and a bar-chart."

Chase merely discloses displaying horizontal bars that represent data corresponding to connotative intensity, i.e., strength or weakness.

In contrast, the present invention claims the feature of displaying clusters of opinions as a bar-chart, in which the clusters of opinions comprise and display relative proportions of extracted opinions.

Nowhere does Chase disclose, teach or suggest displaying a bar chart that displays relative proportions of extracted opinions (or relative proportions of anything else). There is no proportionality applied to the connotative intensity scale of Chase's horizontal bars.

Therefore, nowhere does Chase disclose, teach or suggest the present invention's claimed feature of "... further comprising graphically displaying said clusters of extracted opinions, wherein said graphically displaying comprises displaying relative proportions of said extracted opinions in said clusters of extracted opinions ... wherein said graphically displaying comprises displaying said clusters of extracted opinions using any of a pie-chart and a bar-chart", as recited in currently amended claims 31 and 32, which

depend from currently amended claims 41 and 42. Instead, Chase merely discloses displaying horizontal bars that represent data corresponding to connotative intensity, i.e., strength or weakness.

Furthermore, Chase does not cure the deficiencies of Subasic and Greffenstette. Nowhere does Chase disclose, teach or suggest the present invention's claimed features of "establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence; inputting and parsing said text document to provide a plurality of POS tag sequences; matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions", as recited in currently amended, independent claims 1 and 10 from which claims 31 and 32 depend. Instead, Chase merely discloses displaying horizontal bars that represent data corresponding to connotative intensity, i.e., strength or weakness.

For at least the reasons outlined immediately above in regard to Chase and for at least the reasons outlined above in regard to the prior art rejections over Subasic, and Subasic and Greffenstette, Applicants respectfully submit that Subasic, Greffenstette and Chase, either individually or in combination, do not disclose, teach or suggest the present invention's claimed features of "establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence; inputting and parsing said text document to provide a plurality of POS tag sequences; matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions", as recited in currently amended, independent claims 1 and 10 and from which claims 31 and 32 depend. Accordingly, Subasic, Greffenstette and Chase, either individually or in combination, do not render obvious the subject matter of currently amended, independent claims 1 and 10, and currently amended, dependent claims 31 and 32 under 35 U.S.C. §103(a). Withdrawal of the rejection of claims 31 and 32 under 35 U.S.C. §103(a) as unpatentable over Subasic, Greffenstette and Chase is respectfully solicited.

III. Formal Matters and Conclusion

Claims 1-3, 6-10, 12, 13, 16-19, 29-35, and 37-42 are pending in the application.

Applicant respectfully submits that entry of currently amended claims is proper because the currently amended claims will either place the application in condition for allowance or in better form for appeal.

Applicants respectfully submit that the claims as amended above are directed to statutory subject matter.

Applicants further respectfully submit that the currently amended claims are distinguishable over the prior art of record. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims.

In view of the foregoing, Applicants submit that claims 1-3, 6-10, 12, 13, 16-19, 29-35, and 37-42, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest time possible.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

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/Peter A. Balnave/

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